

Testing the ASIO Multimedia Configuration

The logo for Steinberg Cubase VST. The word "CUBASE" is in a large, white, serif font with a black outline, positioned above a horizontal line. Below the line, the word "VST" is in a smaller, white, serif font with a black outline. The logo is centered within a large, faint, circular graphic that has a subtle gradient and a slight 3D effect.

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Background

Cubase VST comes complete with test procedures to allow the thorough testing of the audio cards, and their options, that are currently configured within the Windows Multimedia System.

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- ❑ **These tests are only related to configurations based on the ASIO Multimedia driver, and have nothing to do with the audio hardware connected to Cubase VST with especially written card-specific ASIO drivers. If your audio card comes with a special ASIO driver, we recommend that you use this instead of the ASIO Multimedia driver.**
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The tests are vital to Cubase VST. If the current configuration of the audio card is not working properly then Cubase VST cannot be expected to function properly. The effects of a faulty audio system are much more wide spread than you might at first imagine. While it may appear that audio is being correctly played at first (maybe because the audio errors themselves are not so obvious), if an audio card configuration is not working properly, then faulty information about the rate at which the audio card is accepting data, leads to MIDI timing problems in Cubase VST.

These tests are designed to give an absolute 'yes' or 'no' answer to whether the current configuration actually has a chance of working.

- **Please be aware that in this context, the term 'audio card' configuration refers to the combination of many elements. These are:**
 - The audio card.
 - The audio card's drivers.
 - The audio card's options.
 - The Windows Multimedia system.
 - The Windows System generally.
 - The processor power of the computer.
 - The current number of active input or output ports.
 - ...and other more subtle factors.

Each of these elements may be seen as being technically free of problems but it's the combination of all these factors that makes the 'audio card configuration' viable for Cubase VST or not. We hope that you can see the need for a test.

Outlines of the Tests

Before describing the actual procedures, we will take a short pause to make a distinction between the various elements of the ASIO-MME test facilities.

Individual Port Testing

In the advanced section of the Steinberg ASIO-Multimedia Setup dialog, it is possible to test each of the individual ports, for its apparent preferred buffer size, and its ability to send or receive data to that individual selected port, without creating errors or losing the synchronism with that port. This is done using the "Check Buffers and Sync" function. The key point is that it's an individual isolated port that is being tested.

Current Configuration Simulation

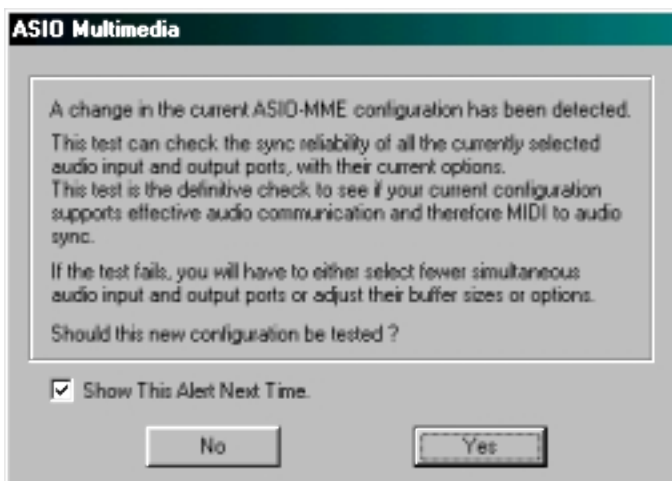
You can test all the activated ports together, while keeping a close watch on the port that has been defined as the 'Sync Reference Port' (the port that returns information to Cubase VST about how fast it is transmitting data). The 'simulation' of normal working conditions is far more important to the successful configuration of the complete system than whether a single port at a time can be successfully used. All the currently active input and output ports are opened with their currently selected options and the data flow is simulated for the complete system. During this test the complete configuration is checked for its 'integrity', defined as "can all the activated ports be transferring data correctly, while the sync information coming back from the currently selected Sync Reference port is free from defects?"

When are the different tests performed?

The Individual port testing is only performed manually within the ASIO-MME setup dialog. The Current Configuration Simulation can also be carried out in the ASIO-MME dialog, but this is also the test that Cubase VST will automatically carry out under the following conditions:

- When Cubase VST is newly installed, and launched for the first time.
- When Cubase VST has been updated.
- When the audio card configuration has been changed.
- When Cubase VST is launched, and the test failed the last time it was performed.

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- ❑ **Until the tests are passed successfully, the messages will keep popping up when you start Cubase VST. You can suppress the messages, but that does not fix the problem. If you do suppress the messages, its up to you to go into the ASIO Multimedia Setup dialog's Advanced options, reconfigure the system and test that it works successfully.**
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This alert is shown if you have changed the ASIO Multimedia configuration.

What do I do if the Test fails?

If the test fails you must go to the ASIO Multimedia Setup dialog's Advanced options and experiment with the setting for your card:

1. **Select Audio Setup from the Options menu and select "System" from the submenu that appears.**

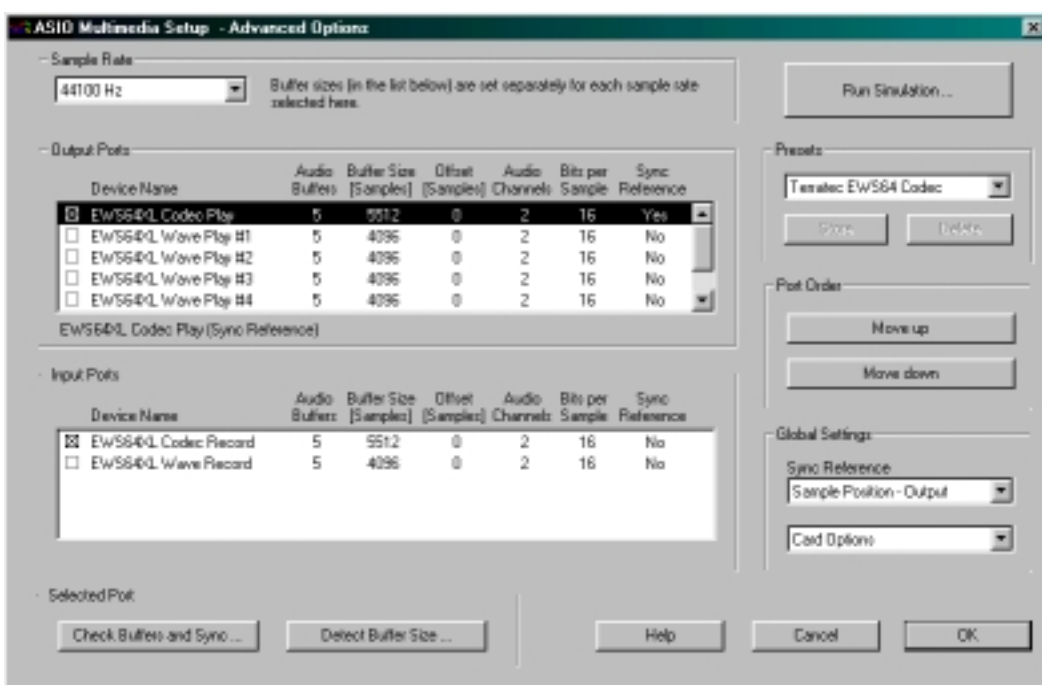
The Audio System Setup dialog appears.

2. **Click the ASIO Control Panel button.**

The basic ASIO Multimedia Setup dialog appears.

3. **Click the Advanced Options button.**

The ASIO Multimedia Setup - Advanced Options dialog opens.



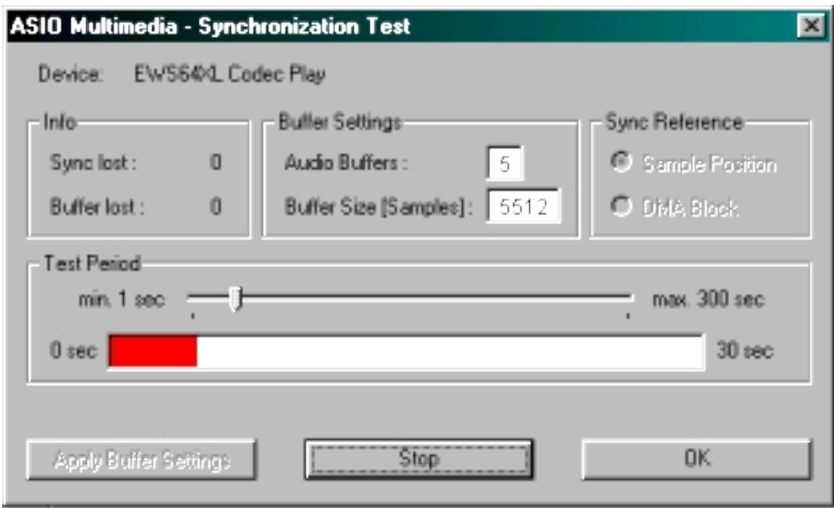
What you now must do to achieve a stable setup depends very much on the card you have installed, and how many input and output pairs that card actually presents to the Windows Multimedia system. Here are some guidelines:

Checking and adjusting each port separately

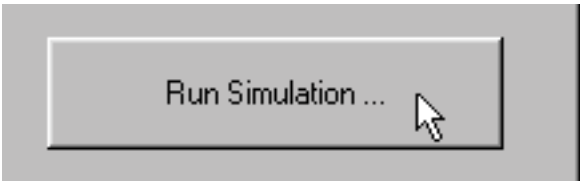
- 1. Select the first port in the Output Ports list and click the Detect Buffer Size button.



- 2. When an apparent preferred buffer size is found, click the Check Buffers and Sync button. The dialog for the individual port test appears.



- 3. Click the Start button to perform the test.
While the test is performed, watch the 'Sync Lost' and 'Buffers Lost' fields. These count the number of instances the port failed in the current test phase.
- ❑ Remember that now data is being transferred to this port alone. This test usually shouldn't fail, but if it does, then you know at least that this port is not a candidate for the Sync Reference Port, and probably you will need an improved driver from the audio card manufacturer.
- 4. Close the test dialog and return to the Advanced Options dialog.
- 5. Repeat the steps above for the other ports in the Output Ports list and then for all ports in the Input Ports list.
- 6. Click the "Run Simulation" button to see if the system can now pass the test properly.



This performs the Current Configuration test as described on the previous pages. Check the 'Sync Lost' and 'Buffers lost' counters in the dialog while the 30 second test is performed.

ASIO Multimedia - Audio-System-Test

ASIO-MME Configuration being simulated

Number of Input Ports : 1

Number of Input Channels : 2

Number of Output Ports : 1

Number of Output Channels : 2

Used Audio Devices (duplex mode) : Inputs and Outputs

Current Sync Reference within simulation

Device Name : EWS64XL Codec Play

Buffer Size [Samples] : 5512

Sample Rate : 44100

Audio Buffers : 5

Sync - Reference : Sample Position

Test Info

Sync Lost : 0

Buffer Lost : 0

Cancel

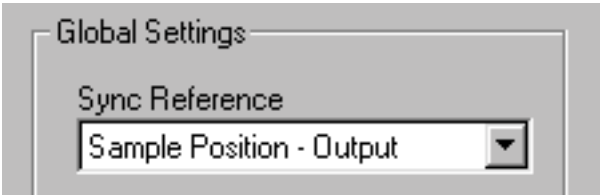
If the tests succeeds, all is well. If it fails, you must make further changes to your setup, as described below.

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After each change you make, you should run the Simulation again to check whether the system now is stable.

Sync Reference settings

- **Try changing Sync Reference port.**
You change Sync Reference port by selecting the desired port in the Input or Output Port list, and moving it to the top of the list using the Move Up button. To determine whether the top port on the Input or Output list should be used, pull down the Sync Reference pop-up menu in the Global Settings section to the right, and select an Input or Output option there.



- **Try changing Sync Reference method.**
There are two general Sync Reference methods, "Sample Position" (preferred) and "DMA Block". You specify which method to use by selecting the corresponding option on the Sync Reference pop-up menu in the Global Settings section.

Deactivating Ports

If the system has multiple inputs and outputs, start deactivating ports in either the inputs or outputs list by clicking on the check box next to each entry.

- **Between each deactivation click the 'Run Simulation' button, as described above, to see if the test is now successful.**
If the test for the simulated transfer of audio data succeeds now with the reduced load, it is not necessarily an indicator that there is anything wrong with the audio card or its drivers - it could be that your computer just isn't powerful enough to support that amount of data being transferred simultaneously.

Card Options settings



Finally you should try changing the items in the 'Card Options' pop-up menu. As a first measure, activate the 'Use 16 bit only' option if you have a 'wide bit' card (you may like to try leaving the wider bits mode on, but proportionally reduce the number of simultaneous ports). Then work up the list of options one by one running the simulation between each change.

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- ❑ **We know that it's going to be disappointing if you cannot have all your ports simultaneously active, or at their widest bit setting. However, if data is being lost, you should remember that this in itself will affect the audio quality you will get from Cubase VST. More importantly, Cubase VST will not be able to effectively sync the Audio and MIDI parts of the program together.**
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MIDI Ports

If you have an audio card that has a built in MIDI port we recommend running the Simulation tests with and without the MIDI ports activated in the Steinberg MME MIDI port setup program. If you can only achieve a successful result with the MIDI ports deactivated, then please contact your audio card manufacturer to see if an updated driver set is available. Otherwise you might like to consider changing to a separate MIDI Interface system.